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CALIFORNIA FOREST AND RANGE EXPERIMENT STATION
FOREST SERVICE, U.S. DEPARTMENT OF AGRICULTURE

LODGEPOLE NEEDLE MINER
STANISLAUS NATIONAL FOREST
RECONNAISSANCE SURVEY
AUGUST 1958

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Introduction

The lodgepole needle miner, Recurvaria milleri Busck, was recently found for the first time on national-forest land north of Yosemite National Park. On August 6 and 7, G.C. Trostle and R. Rennie from the California Forest and Range Experiment Station found lodgepole pines defoliated by this moth on a reconnaissance of the Emigrant Basin Wild Area on the Stanislaus National Forest. A verbal report of possible damage in the vicinity of Horse Meadows was received by the Experiment Station from the District Ranger Jack L. Reveal in 1956. The area was checked during the fall of 1956 aerial survey but no defoliation of lodgepole could be positively identified. It was felt that in 1958 a special effort should be made to determine the extent of damage which might be taking place on national-forest land.

Invasion of the Emigrant Basin by the needle miner is not unexpected since this area is closely adjacent to about 50,000 acres of infested lodgepole in Yosemite National Park.

Insect and Host Species

The lodgepole needle miner is a defoliator of lodgepole pines. It requires 2 years to develop from the egg to moth, with even-numbered years spent as larvae feeding inside the lodgepole needles. 1/ At the time of this survey, the insect was in the larval stage.

Lodgepole is attacked at elevations between 8,000 and 10,000 feet. This particular infestation on the Stanislaus occurs in a mature to overmature stand with an average tree diameter of about 18 inches. The lodgepole type in this area is confined to small stringers along the water courses. Trees are mostly short and occur in typical open, mixed stands found in the central Sierra.

1/ Struble, George R. 1958. Lodgepole needle miner, U.S. Dept. Agr. Forest Pest Leaflet 22. 7 pp. illus.

The mountain pine beetle, Dendroctonus monticolae, Hopk. has often developed epidemic populations in the defoliated stands to the south in Yosemite Park. Attacks by this bark beetle kill the trees in a single year by girdling whereas the needle miner causes a much more gradual decline by defoliation. No mountain pine-beetle attacks were seen in the Horse Meadows area.

Status of the Infestation

The extension of the needle miner into the Stanislaus Forest was found to be confined within 1,500 acres in the area of Horse Meadows, the southernmost part of the Emigrant Basin and the headwaters of the Cherry River (see map). The infestation seems to be well isolated within its present area, providing the insect does not extend its range below 8,000 feet. The lodgepole type continues down the drainage below 8,000 feet for some distance but above this elevation it is surrounded by a wide expanse of bare earth, rock, and brush.

The amount of defoliation taking place in 1958 was noticeably heavier east of Horse Meadows towards Snow Lake than in the area west. The lower limit of the infestation was about 1-1/2 miles west of Horse Meadows at about 8,000 feet level while defoliation extended about 2-1/2 miles to the east almost to Snow Lake. Lodgepole around the edge of Maxwell Lake contained a light infestation only a few years old, while the medium infestation to the east was several years older. West of Horse Meadows the defoliation was also classed as light. Previous defoliation was impossible to measure since it has not, up to this time, caused sufficient damage to leave its mark.

Discussion

The concentration and older age of damage in the upper part of the drainage suggests that the point of introduction of needle miner to the Horse Meadows area was through Bond Pass. This theory gains more evidence when one notes that this pass lies at the head of Jack Main Canyon, the site of one of the oldest infestations in Yosemite Park.

The size of the presently infested area in Horse Meadows probably will not increase for several years; however, if a large population of needle miners builds up, the infestation could make the next step north into the Emigrant Lake area.

Artificial control of the lodgepole needle miner is still in the development stage. Helicopter applications of malathion have given between 60 and 70 percent control in Yosemite Park at a cost of from $30 to $50 per acre. If artificial control is not attempted, the presently infested trees will probably last at least 10 to 20 years. Within that time some natural control may stop the infestation or artificial control may be improved.

The mountain pine beetle does not seem to be a threat to this area as yet, since no infested trees were seen. Yet, even if such an infestation of bark beetles were to develop suddenly and wipe out the mature lodgepole, the area would not be as bleak as the ghost forests of Yosemite. Red fir and hemlock which also occur in the area are not affected by either of these insects, and the young lodgepole understory would quickly grow so that within a few years the loss of the mature stand would not be noticed. Although only a few trees have suffered damage thus far, more and more will be defoliated as the infestation is built up. The area therefore should be checked periodically to appraise the current damage.

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Attachment

EMIGRANT MEADOWS
STANISLAUS NATIONAL FOREST
RECONNAISSANCE SURVEY, 1958